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[DETAILED DESCRIPTION OF THE INVENTION]

[Area of Industrial Use]

This invention relates to a facsimile storage and exchange apparatus that temporarily stores image data that has been received, and subsequently sends it to the designated recipient, and more particularly, to a facsimile storage and exchange apparatus that carries out the so-called private handling of image data and allows it to be read by the prescribed recipient only.

[Description of the Prior Art]

Fig. 8 shows a system using a conventional facsimile storage and exchange apparatus. In this system, a data input/output terminal 52 including a CRT display device and a keyboard input device is connected to the main unit 51 of the facsimile storage and exchange apparatus, and data input and display are performed via the data input/output terminal 52. The main unit 51 includes a CPU 53 that controls the entire apparatus, a memory 54 that stores various types of data, a data disk 55 that stores image data, and a CCE 56 that performs communication control. The CCE 56 is connected to a public network 50 via multiple lines 57. Facsimile machines A, B, C, D, ..., which comprise terminals, are connected to the public network 50.

The facsimile storage and exchange apparatus 51 in the above system includes a program that executes private communication, and the following operation sequence is performed based on this program. First, identification information (ID), telephone number information and communication service information (information that indicates that the terminal is capable of private communication, etc.) for each terminal are input from the data input/output

terminal 52 and registered in the memory 54.

A situation in which the facsimile machine A (ID = 100) sends the facsimile storage and exchange apparatus 51 image data via private communication and registers it therein, and the facsimile machine B (ID = 101) reads out the image data will be explained. First, in the facsimile machine A, an original document is set as shown in Fig. 10(a), and the telephone number of the facsimile storage and exchange apparatus (S/F in the drawing) 51, the communication service code that requests registration of an original document data marked for private communication, the sender ID, the recipient ID and the password are input via the operation keys. The facsimile machine A then awaits the response from the facsimile storage and exchange apparatus 51. When a response is received, reading of the original document is begun, whereupon image data is obtained and sent. The facsimile storage and exchange apparatus 51, which has received this transmission data, boots the program represented by the flow chart of Fig. 11, detects whether the received communication service code requests registration of the original document for private communication (201), and further detects based on the sender ID and the recipient ID whether these terminals are allowed to conduct private communication (203), and whether the password includes the prescribed number of digits and is correct (205). Where all of the conditions are met, a private box (area) is secured in the data disk 55 and the received image data is stored therein (207). The above operation is shown in Phase 1 in Fig. 9.

The facsimile storage and exchange apparatus 51 then sends to the facsimile machine B based on the recipient ID a notification to the effect that a private communication document data has been received, and stands by (Phase 2 in Fig. 9). The user of the facsimile machine B inputs via the operation keys the telephone number of the facsimile storage and exchange apparatus (S/F in the drawing) 51, the communication service code that requests the reading out of the private communication image data, the sender ID (the facsimile machine B here) and the password, as shown in Fig. 10(b). The facsimile storage and exchange apparatus 51 that has received this transmission incorporates this data, and boots the program represented by the flow chart of Fig. 12. In other words, the facsimile storage and exchange apparatus 51 detects whether (i) the communication service code is a code that requests the reading out of private communication image data (211), (ii) the terminal represented by the sender ID is a terminal for which private communication is allowed (213), and (iii) the number of digits of the password is correct and the password corresponds to the image data stored therein and is correct (215). Where all of these conditions are met, the facsimile storage and exchange apparatus 51 reads out the image data from the relevant private box of the data disk 55

and sends it to the facsimile machine B (217). This operation is shown in Phase 3 of Fig. 9.

Where the transmission of the image data to the facsimile machine B is completed normally, the facsimile storage and exchange apparatus 51 deletes the image data in the private box, sends the facsimile machine A, i.e., the sender, a notification that indicates the completion of transmission (Phase 4 in Fig. 9), creates notification journal data in accordance with the configuration settings, and registers the notification journal data in the memory 54.

[Issues Addressed by the Invention]

However, in accordance with the facsimile storage and exchange apparatus having the above construction, the private communication image data remains stored unless it is read out by the recipient facsimile machine, which reduces the available memory area. That is, if the user forgets the password, or deems it no longer necessary to read out the image data for some reason, the data permanently remains in the memory, giving rise to the shortcoming that such data creates an obstacle to the storage of other image data.

The present invention was created in order to resolve the problems with the conventional facsimile storage and exchange apparatus described above, and an object thereof is to provide a facsimile storage and exchange apparatus that is capable of deleting obsolete private communication image data that remains in the apparatus, thereby preventing such data from reducing the amount of storage area available for other image data.

[Means to Resolve the Issues]

The present invention comprises a facsimile storage and exchange apparatus that includes image storage means that stores image data that has been received; original document management information storage means that stores qualification information that allows the image data stored in the image storage means to be read out by a prescribed recipient only; input means to input information; and command control means that, where a command to delete image data is input via the input means, determines, based on the information in the original document management information storage means, whether the image data is qualified to be allowed to be read out by a prescribed recipient only, and where such qualification is present, issues a command to delete the image data when a prescribed input is made.

[Operation]

According to the facsimile storage and exchange apparatus having the above construction, where image data designated by a deletion command is qualified to be read out by a prescribed recipient only, a deletion command is output, and the image

data is deleted, only after a prescribed input has been made, preventing image data from being deleted carelessly or inadvertently.

[Embodiments]

One embodiment of the present invention is explained below with reference to the drawings. Fig. 1 shows the construction of the facsimile storage and exchange apparatus pertaining to one embodiment of the present invention. The CCE (Communication Control Equipment) 5 is connected to a public network via multiple lines 7. Connected to the CCE 5 is an image sending/receiving means 14, which performs processing regarding transmission and receipt of image data. Among the data received, the data relevant to the management of the original document data such as the sender, the recipient and the password is supplied to the original document management information control means 13, and the image data is supplied to the image management means 15. A communication management number is allocated to the image data during each communication session, and this communication management number information is supplied to the original document management information control means 13 and the image management means 15. A timer means 12 is connected to the original document management information control means 13, such that the time of receipt is attached to the data, which is converted into a original document management table 42 shown in Fig. 5 and stored in the original document management information storage means 11. The image data is stored in the image storage means 16 by the image management means 15. Where the image data is to be read out, the original document management information control means 13 is instructed to search for and read out the corresponding original document management table 42 based on such data as the password, which is supplied via the CCE 5, or the communication number data that is generated by a timer interrupt, and based on this original document management table 42, the image management means 15 is instructed to read out the corresponding image data and the transmission process is carried out.

The notification processing means 19 sends the notification explained in connection with Phase 2 and Phase 4 of Fig. 9 to the relevant facsimile machine via the CCE 5 in accordance with a command from the image sending/receiving means 14.

The facsimile storage and exchange apparatus shown in Fig. 1 also includes display means 22 such as a CRT display device, as well as input means 23 such as a keyboard input device. The display means 22 displays information based on the control carried out by the display control means 21. The command control means 20 analyzes the data input from the input means 23, and performs control of the various components based thereon. Connected to the command control means 20 is a

terminal management information control means 18, which manages the data in the terminal management information storage means 17. Specifically, when a request to register terminal management information is input from the input means 23, the command control means 20 boots the terminal management information control means 18, supplies the terminal management information data that is subsequently input, and stores it in the terminal management information storage means 17. Fig. 4 shows a terminal management information table 41 that is registered in the terminal management information storage means 17.

Fig. 2 shows the details of the command control means 20. The command control means 20 includes a menu processor 31 that, when power is turned ON, supplies the menu display data to the display control means 21 and causes the display means 22 to perform corresponding display. The initial menu enables selection of either the terminal management information process or the original document management information process. When either of these processes is selected, either the terminal management information processor 32 or the original document management information processor 33, each of which corresponds to a given selection, begins to operate. The terminal management information processor 32 has a search program 34, a change/delete program 35 and a register program 36. The original document management information processor 33, on the other hand, has a search program 37, a delete program 38 and a history management program 39. The search program 34 is a program by which to search for information pertaining to a desired terminal (a terminal management information table 41), the change/delete program 35 is a program by which to change or delete registered terminal management information, and the register program 36 is a program by which to newly register terminal management information.

On the other hand, the search program 37 is a program by which to search for an original document management table 42 using, with regard to original document management information, information regarding the sender, the recipient, the type of communication service, the length of time during which the data is stored, etc. The delete program 38 is a program by which to delete the image data that corresponds to the original document management table 42 that was extracted via the search program 37. The history management program 39 is a program by which to add to the original document management table 42 deleted via the delete program 38 data indicating that it was deleted, to maintain the deletion information as deletion history information, and to cause the notification processing means 19 to instruct that a notification of the deletion be sent to the relevant facsimile machines. Therefore, any desired private communication image data can be reliably deleted by performing a prescribed input from the input means 23. Each of the above programs displays on the display means

22 data showing the result of the processing or indicating that the process is underway, enabling confirmation by the operator. An explanation is provided below using a more specific example.

Fig. 3 shows a system in which a data input/output device 6 is connected to the main unit 1 of a facsimile storage and exchange apparatus, and the CCE 5 of the main unit 1 is connected to a public network 8 via multiple lines 7. In this example, the data input/output device 6 comprises display control means 21, display means 22 and input means 23. Besides the CCE 5, the main unit 1 includes a CPU 2, a memory 3 and a data storage disk 4. The data storage disk 4 comprises image storage means 16. The memory 3 includes a terminal management file 3A and an original document management file 3B. The terminal management file 3A includes multiple terminal management information tables 41, and the original document management file 3B includes multiple original document management tables 42. Means other than the above are realized via the CPU 2 using the programs in the memory 3. Programs represented by the flow charts of Figs. 6 and 7 are stored in the memory 3, and the CPU 2 performs based on these programs the storage process regarding image data pertaining private communication original documents, as well as the deletion process regarding image data pertaining to private communication original documents and stored in the data storage disk 4.

In the system shown in Fig. 3, terminal management information is input from the data input/output device 6, and a table 41 shown in Fig. 3 is created and deemed the terminal management file 3A via the control carried out by the command control means 20.

If data arrives at the CCE 5 via the lines 7, and notification is received by the CPU 2, the program represented by the flow chart of Fig. 6 is booted. The CPU 2 detects whether (i) the received communication service code requests registration of private original document data (101), (ii) the sender ID and the recipient ID are registered in the terminal management file 3A (102), and based on these IDs, whether (iii) the corresponding terminals are allowed private communication (103). It then detects whether the supplied password has the prescribed digits, etc., and is correct (104). Where all of the conditions are met, a private box (area) is secured in the data storage disk 4, and when this is done, a communication management number is allocated to the image data (105). The received image data is subsequently stored, and the original document management table 42 shown in Fig. 5 is created and stored in the memory 3 (106). When this is done, no data has been added to the area 43 of Fig. 5.

At the same time, the CPU 2 boots the program shown in the flow chart of Fig. 7 based on the turning ON of power, displays a menu on the data input/output device 6 (111) and

awaits an input (112). When an input is received from data input/output device 6, data analysis is performed (113), and it is detected whether the input represents a command to delete the original document image (114). If it is a command to delete the original document image, a deletion screen is created and supplied to the data input/output device 6 for display (115). The deletion screen here includes a display that indicates the fact that the image data deletion routine is present, and also indicates that an input must be entered in order to specify the image data to be deleted.

The CPU 2 then awaits data input (116), and when there is data input, it performs analysis (117). Because this input is an input that specifies the image data to be deleted, the communication management number is usually input, but it is also possible to use the search program 37 to search for a private communication original document management table 42, such that a delete command can be input when the private communication original document management table 42 has been stored for a prescribed length of time or longer. When the object to be deleted is input in this way, it is detected whether corresponding data is stored (118), and if there is no corresponding data, an error display is performed on the data input/output device (119). If corresponding data exists, that original document management table 42 is converted into display data and displayed on the data input/output device 6, whereupon a message asking whether the data may be deleted is also displayed (120). The CPU 2 then awaits an input (121), and when there is an input, detects whether it is an input to confirm deletion (122).

If confirmation is not obtained in the above step, the CPU 2 returns, and if there is a confirmation input, it deletes the corresponding image data in the data storage disk 4, as well as the displayed original document management table 42 (123). The original document management table deleted here is disabled as a manager of the stored image data, and is not removed; the area 44 in Fig. 5 is deleted, and an area 43 is created in which the time of deletion is added such that it remains as history information, and the fact of deletion is sent via a notification to either the sender or the recipient or both (124), whereupon the CPU 2 returns. This notification includes the date and time of transmission, the number of pages and other information describing the original document data, and in another example, includes part of the original document data (such as the top line).

Private communication image data is deleted in this manner, while a deletion notification and history information are maintained. Therefore, the fact of deletion is made clear to the people who have a relationship to the deleted image data (i.e., the sender and the recipient), and by causing the search program 37, via the data input/output device 6, to seek and display the corresponding history information, a response

can be provided to subsequent inquires.

[Effect of the Invention]

As described above, according to the present invention, where image data for which deletion was instructed is qualified to be read out by a prescribed recipient only, a deletion command is output only if a prescribed input is made before the image data is deleted, and as a result the image data can be deleted where necessary, while careless or inadvertent deletion of image data can be prevented.